7
MOTION

7.0 MOTION

Motion is the third of the three elements comprising the material substance dimension of a communication. The other two elements, *description* (chap. 5) and *comparison* (chap. 6), are *static*, and if properly written should give your reader a clear impression of a stationary subject. This chapter will tell you how to transmit in writing the notion of motion, movement, dynamics.

Principally motion is not an isolated writing tool, although it may in some instances be used alone. More likely you write motion seamlessly in conjunction with either or both description and comparison, each a component part of the material substance.

You write motion to convey instructions, directions, recipes, musical scores, prescriptions, progress reports, shop orders, work orders, change orders, and manuals; but not specifications. Specification writing is whole subject unto itself, incorporating all the basic principles contained in this volume, then extrapolating them to suit the *specific* requirements of your document.

Your target reader (of any of those items just cited) *needs* the document information it carries, thus he becomes a captive audience. Yet you must maintain his attention throughout for him to receive your complete, detailed information.

7.1 CONCEPT

Before digital cameras and video, all motion pictures were made on cellulose acetate–based film. Consider, for instance, watching a football film

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projected on a screen. You'd see Tom Brady's right hand holding the ball; he cocks his arm, then flings the ball spiraling toward the receiver, Randy Moss. After the flick ends and the lights come on, you hold the film strip in your hands. There is nothing moving in the film. You see a series of consecutive still frames, each one showing Brady's arm for an instant in a different position forward of the preceding frame position. In calculus the symbol *dx/dt* indicates a change of position with regard to time. When the still frames are run rapidly in consecutive order, you get the impression of motion. Thomas Alva Edison (the incandescent light bulb) materialized that phenomenon and evolved mechanical motion picture devices both for filming and projecting. But Eadweard Muybridge,[1] a late nineteenth-century photographer, set up a long straight row of 24 string-tripped still cameras. Each shot a photo in rapid succession after its predecessor while a horse galloped past them. From observing the change of position of the horse's hooves as the time and pictures progressed, he proved that at one point in each stride all four of a horse's feet are off the ground, until then a long-time point of conjecture. In 1875 Muybridge published three photo-illustrated books: *The Horse in Motion*, *Animals in Motion*, and *The Human Figure in Motion*; the last includes his classic photo series, "Girl Kicking a Hat." Consider Muybridge's 1875 publication date beside Edison's *kinescope*, that made its debut public appearance on April 14, 1894.

That graphic background provides for you the basis for writing motion. Instead of consecutive still pictures showing changes over time, you write a series of sequential statements in close consecutive order; the resultant sequential readout will convey the notion of motion.

7.2 INSTRUCTIONS

Instructions are the most frequent application of motion writing. Telling a reader, clearly, how to do something (possibly entirely new to him, or worse, something he thinks he knows all of everything about) is not easy. Again it brings up both your reader's knowledge datum and his reader comprehension level. There is no one-size-fits-all instruction for writing instructions; but I do offer an umbrella method, sufficiently broad that you may use what you need of it, and leave the rest.

Caveat: Usually it is not prudent to write an instruction for a task of which you have no personal experience. Of course, that is not always possible, but if you've done it yourself, you know firsthand of what you are writing. Thus, you pass it on more confidently, and the reader uses it more

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confidently, with full trust. An old fragment from the golden age of Chinese proverbs sagaciously advises, "To know the road ahead, ask those coming back."

7.3 INSTRUCTION PROTOTYPE

To give you the most from this exercise, I've confected a multifaceted operation that includes as many separate situations as reasonably possible. The example shall be an instruction for putting together two separate assemblies from preselected fabricated parts. The two assemblies shall, in turn, be combined into one single finished installation for a larger machine.

7.3.1 FIRST STAGE.

7.3.11

Cite the installation, and the specific first stage.

7.3.12

State what you wish to accomplish in this stage, and why. The operator will then know where this is going.

7.3.13

State this caveat verbatim. It seems obvious, but should not be left unsaid: "Please read *all* instructions before you do anything else." Too many clever, impatient people dive right in, doing it while they read until they come to an abrupt stop because they couldn't anticipate the next condition. Better to be aware, as just stated in the section 7.2 caveat.

7.3.14

List a bill of materials (B/M) for all stages, through to complete installation, to avoid the reader's having to pause the action while he runs out to get a part. Include everything needed for a complete, uninterrupted operation, then restate the items needed *only* for the first stage.

7.3.15

List all cautions and warnings for the safety of the operator and nearby persons. This is for the first stage only; each stage will have its own hazards in that stage at hand. Safety is the top priority. Each stage should be treated in its own time (app. 7.3.15).

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7.3.16

List boundary conditions, limits, and parameters for operation in the first stage only.

7.3.17

Procedure: the actual step-by-step process in chronological order to complete the first assembly using all the parts listed in the B/M for first stage only (app. 7.3.171 and 7.3.172).

7.3.18

List all available spot checks for use along the march in stage 1 only, to be sure the operator is in line to the end result.

You are done with the first assembly.

7.3.2 SECOND STAGE.

7.3.21

Restate the overall title and the specific subtitle for stage 2.

7.3.22

Cite the objective for stage 2 only.

7.3.23

No need at this point to restate the caution caveat.

7.3.24

For operator comfort, restate that portion of the B/M and special preps for the second stage only.

7.3.25

Carefully state specific new safety cautions for the second stage only.

7.3.26

Cite whatever additional limits and parameters are required in the second stage only.

7.3.27

State in detail all the steps, in turn, required to complete the second assembly using all the materials listed in section 7.3.24.

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7.3.28

Cite all available spot checks along the line for stage 2 to be safely on track.

You are done with the second assembly.

7.3.3 FURTHER STAGES

If there are three or more assemblies, you repeat the protocol for stage 2 for each unit for as many component assemblies as needed.

7.3.4 INSTALLATION BUILDING

Combine all the assemblies into the installation after all of each stage is completed. The instructions for the combining stage should include:

7.3.41

Appropriate title.

7.3.42

Accomplishment goal for the full installation.

7.3.43

Caveat not needed at this point.

7.3.44

All things necessary to finish the entire job.

7.3.45

All new safety precautions.

7.3.46

All new limits and parameters.

7.3.47

Details of all procedures required to finish the job.

7.3.48

All spot checks.

You should now have a complete working installation.

7.3.5 FINISHING

To put this installation into the big machine, follow all the steps in section 7.3.1.

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7.4 THE LOGICAL, FOURTH CONSIDERATION

I have skimmed through some thirty-odd books on writing on the shelves of one technical and one major chain bookstore in New York. Their overall consensus on writing instructions comprised three principal points. All instruction, they say, must be *understandable*, *concise*, and *grammatically correct*.

Do Not Read This.

That terse instruction is clearly comprehensible; its four words are in their closest compass (eliminating any one word will alter or lose the sense of meaning of the instruction); and, as it stands, the statement is grammatically correct. But it is an instruction impossible to follow because it is an absurdity. Thus, while agreeing with the consensus, I must add a necessary fourth requirement. Yes, an instruction must be understandable, concise, and grammatically correct, but it also must be *logical* (app. 7.4).

7.5

This entire volume is dedicated to professional expressions in English. Although I am passably proficient in only one additional ethnic idiom, I make no presumption about conveying ideas in any other language beyond English.

Some specific professional practices have universal parlances peculiar to them; symbols that override national tongues. Consider: Two currently contemporary violinists, a Brazilian and a Hungarian, can play a perfect duet, composed centuries earlier by an Italian. None of those three would be able to speak outside his native tongue, but the fiddlers can play in compatible synchronicity because the composer wrote his instrumental instructions in the language universally understood by all musicians. That is, black dots, some with flags, maybe an octothorpe, and a few other symbols, all on a score sheet of staves (app. 7.5), each of five lines enclosing four spaces, plus additional ledger lines above and below when needed. From that sort of written message, musicians everywhere in the Western world can play a melody to sound exactly as its originator had envisioned, then instructed.

And that performance is only the *first* half of the train of thought conveyance. The violin duo converted the composer's visually written musical instructions to audible musical sounds. Those specific sounds, in turn, transmitted in air, created in the listener's mind perhaps the image of a bird in flight: the exact image the composer had in mind as he wrote in another language, in another era, half a world away.

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Again the same *dx*, the single frames of a film strip run in rapid succession, to transmit the *dt* notion of motion. In his description of the Virginia countryside (sec. 5.3), Richard L. Klein moves you with the flow of the James River as it moves from its source to its outfall at Hampton Roads. While reading that, in my mind's ear I heard Bedrich Smetana's tone poem, the *Moldau*, also about a river, flowing through the Bohemian countryside to the sea.

Similarly, a Venezuelan physician writes an instruction to a Bulgarian pharmacist to compound a specific remedy for dyspepsia, in the language of the apothecaries. Prescriptions ("scripts") begin with the traditional figure, ℞. That symbol evolved from the Latin *composition*, via the Italian *recitta* (*recipe*), meaning *to take*. That, in the sense of instructing the druggist what ingredients *to take* to put into his *compound* to yield the desired *composite*. The prescription, ℞, then goes on to instruct the patient *how to take* the compound to alleviate his ailment; "just what the doctor ordered." Toward universal common understanding, Linnaeus[2] organized and classified all things botanical into Latin, so everyone envisioned the same thing.

Although the predominant part of this *motion* writing chapter deals with composing instructions, do not lose sight of the *principal* use for this entire element of the main idea, *thought transference*. Descriptions and comparisons tell your reader about *statics*. By using this important element, *motion*, you tell him how to move entities toward your intended goal.

EVERY BODY CONTINUES IN ITS STATE OF . . .
UNIFORM MOTION IN A RIGHT LINE.[3]

—Sir Isaac Newton

NOTES

1. b. Edward James Muggeridge (1830–78).
2. Karl von Linné, Sweden (1707–78).
3. Sir Issac Newton, preface to *Philosophiae Naturalis Principia Mathematica* (London: Samuel Pepys Presses, 1687). A body in motion tends to remain in motion in a straight line.

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